

Using Quality Control Sample Results in the Process of Improving Method Performance for the Determination of Plutonium in Urine

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Los Alamos National Laboratory (LANL) has established a radiobioassay monitoring program in compliance with the requirements in the Code of Federal Regulations, 10 CFR 835, *Occupational Radiation Protection*. In support of this program, the Chemistry Division under its Bioassay Project provides analytical laboratory testing services for the analysis of urine samples. The analytical laboratory operations currently determine americium and plutonium by alpha spectroscopy as well as plutonium by thermal ionization mass spectrometry (TIMS). In support of these analytical operations the Bioassay Project maintains a quality control (QC) program as part of its rigorous quality assurance (QA) program. The overall QC program includes participation in both internal and external performance evaluation programs. The internal QC program for the Bioassay Project includes in-house preparation of QC materials, incorporation of “blind” QC samples into analysis batches, and assessment of QC sample results.

Assay of the “blind” QC samples provides one of the key performance metrics for the QC program. Laboratory performance on “blind” QC samples is assessed when the sample results are reported and is also tracked and assessed on both a monthly and quarterly basis.

The presentation will describe the monitoring, assessment, and use of the “blind” QC sample results as part of a focused effort on improving the performance of our method for the determination of plutonium in urine.